CLAIMS

What is claimed is:

1. A storage medium comprising:
    a. a substrate,
    b. a magnetic layer, and
    c. a means of selectively introducing a plurality of nucleation sites into said magnetic layer,

    whereby said nucleation sites represent the information to be stored.
2. The storage medium of claim 1 wherein said nucleation sites are introduced into said magnetic layer by creating features on said substrate.
3. The storage medium of claim 1 wherein said nucleation sites are introduced into said magnetic layer by creating steps on said substrate.
4. The storage medium of claim 1 wherein said substrate has a surface with a texture, and said texture is selectively altered to introduce said nucleation sites into said magnetic layer.
5. The storage medium of claim 1 wherein said magnetic layer is a magneto-optical thin film.
6. A method of storing information in a magneto-optical medium comprising: creating nucleation sites in said medium to store the information.
7. The method of claim 6 wherein said nucleation sites are introduced into said magnetic layer by creating features on said substrate.
8. The method of claim 6 wherein said nucleation sites are introduced into said magnetic layer by creating steps on said substrate.
9. The method of claim 6 wherein said substrate has a surface with a texture, and said textured is selectively altered to introduce said nucleation sites into said magnetic layer.
10. A method of storing information in and reading information from a magnetic layer comprising:
    a. creating a plurality of nucleation sites at predetermined locations in said magnetic layer, and

b. heating said storage layer at a selected location to detect said nucleation sites in said magnetic layer,

whereby said nucleation sites represent the information to be stored and whereby heating said storage layer causes a magnetic domain to nucleation when a nucleation site is present under said selected location.

11. The method of claim 10 wherein said nucleation sites are introduced into said magnetic layer by creating features on said substrate.
12. The method of claim 10 wherein said nucleation sites are introduced into said magnetic layer by creating steps on said substrate.
13. The method of claim 10 wherein said substrate has a surface with a texture, and said textured is selectively altered to introduce said nucleation sites into said magnetic layer.
14. A method of fabricating a domain expansion medium comprising: depositing a single magnetic layer in which said magnetic layer's properties are used to both store and read back information.
15. The method of claim 14 wherein said magnetic properties store information by containing localized nucleation sites.
16. The method of claim 14 wherein said nucleation sites are introduced into said magnetic layer by creating features on said substrate.
17. The method of claim 14 wherein said nucleation sites are introduced into said magnetic layer by creating steps on said substrate.
18. The method of claim 14 wherein said substrate has a surface with a texture, and said textured is selectively altered to introduce said nucleation sites into said magnetic layer.